

[JP,11-343222,A(1999)]

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**Notes:**

1. Untranslatable words are replaced with asterisks (\* \*\*).
2. Texts in the figures are not translated and shown as it is.

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## **CLAIM + DETAILED DESCRIPTION**

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**[Claim(s)]**

[Claim 1] A cosmetic which blended a silica metal oxide particle complex characterized according to conditions of (1) - (3) below.

(1), [ said complex ] [ on the surface of a silica aggregate particle which has a gap in which a scaly silica primary particle is formed by overlapping irregularly, and this surface in a gap ] A metal oxide particle is supported and, [ (2) this metal oxide particle ] they are one sort or two sorts or more of particulates chosen from a group which consists of a titanium dioxide, a zinc oxide, cerium oxide, iron oxide, and a zirconium dioxide -- (3) -- a weight percentage of a metal oxide particle in said complex gross weight is 1 to 80 weight %. [ and ]

[Claim 2] The cosmetic according to claim 1 whose blending ratio of a silica metal oxide particle complex blended into a cosmetic is 1 to 50 weight % [Claim 3] The cosmetic according to claim 1 or 2 a cosmetic is [ cosmetic ] in any of a cosmetic for pure, a hair cosmetic, a basic cosmetic, a charge of face make up, sun tanning and a sunscreen cosmetic, a nail cosmetic, an eyeliner cosmetic, a lips cosmetic, a mouth cosmetic, and a cosmetic for bathing.

[Claim 4] The cosmetic according to any one of claims 1 to 3 which is that in which a metal oxide particle has an ultraviolet shielding function.

[Claim 5] The cosmetic according to any one of claims 1 to 4 whose size (particle diameter) of a primary particle of a metal oxide particle is a 0.002-0.5-micrometer thing.

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**[Detailed Description of the Invention]**

[0001]

[Field of the Invention] This invention relates to the cosmetic with which the metal oxide particle which has an ultraviolet shielding function etc. blended the silica metal oxide particle complex currently supported by the silica aggregate particle surface which consists of scaly silica.

[0002]

[Description of the Prior Art] The hazardous property over the skin of ultraviolet rays

came to attract attention dramatically ignited by the problem of depletion of an ozone layer in recent years. If exposed to ultraviolet rays, it will reach to the papillary area of dermis, acute inflammation will be caused, bubble and erythema will be made, the melanism of a pigment cell is promoted, and the skin is discolored in black. If put to repetition ultraviolet rays for a long time, the collagen fiber of skin structure will be destroyed and it will become a cause of aging of pigmentation, such as generating of small JIWA, a spot, and a freckle, and the skin, and also when the worst, it has turned out that the gene of the cell of the skin is damaged and there is a danger of inducing skin cancer.

[0003]According to a report, it is clear from being indicated in document of much latest dermatology what is depended on 80% of causes, such as a wrinkle of the skin and a spot, being put to ultraviolet rays, and that it is carried out and the bad influence of ultraviolet rays crosses in many fields beyond anticipation.

[0004]In this way, the request to the cosmetic which has a sun screen (ultraviolet-rays cut) function is becoming high as the influence of the skin on ultraviolet rays becomes clear. The ultraviolet shielding agent of the organic system and an inorganic system is blended with these cosmetics in order to cover ultraviolet rays.

[0005]As an ultraviolet shielding agent of an organic system, things, such as a benzophenone series, a cinnamic acid system, and a benzoic acid series, are known, and since ultraviolet rays can be covered efficiently, without concealing the skin, it has been used more mostly than before. However, in order to acquire the effective sunscreen effect, these ultraviolet shielding agents must be blended so much into a cosmetic constituent. If a deer is carried out and it blends so much, various problems [, such as a bad influence to a human body, ], such as increase of the stimulus to a fall, coloring, and the skin of the ultraviolet rays screening ability by deterioration of other base by the phase separation based on low compatibility with other base and an ultraviolet shielding agent and decomposition of an ultraviolet shielding agent, will be produced.

[0006]On the other hand, as an ultraviolet shielding agent of an inorganic system, the titanium dioxide as a metal oxide, a zinc oxide, cerium oxide, iron oxide, a zirconium dioxide, etc. are known. Since it has an ultraviolet-rays shielding effect broadly, and there is little deterioration by ultraviolet rays and percutaneous absorption is not carried out, these have the feature with very few problems of dermal irritation. However, since another side and opacifying strength are high, if it applies, it is difficult [ it ] to be exterior inconvenience and to blend the skin with a cosmetic so much, chlorosis or in order to color.

[0007]Metal oxides, such as a titanium dioxide as an ultraviolet shielding agent, a zinc oxide, cerium oxide, iron oxide, and a zirconium dioxide, can control the chlorosis at the time of an application, or coloring by using the shape of a particulate or making it a thin film integrated circuit. However, when the shape of a particulate was used, these were very apt to cause condensation and generally had SUBJECT that mileage was bad also not only in the sunscreen effect fully not being demonstrated but its using feeling.

[0008]Whether it uses these alone although the thing with high safety to the skin which has a natural makeup result will be obtained, if a metal oxide is made into a thin film integrated circuit, or it used together with the ultraviolet shielding agent of the organic system of the quantity which does not have a problem in safety, it had SUBJECT that sufficient sunscreen effect was not acquired.

[0009]In order to solve such a problem, in the patent No. 2591946, what carries out distributed content of the metal oxide particles, such as a titanium dioxide, uniformly inside the silica matrix of a thin film integrated circuit is proposed. The concrete process hydrolyzes from acid after distribution, applying metal oxide particles, such as a titanium dioxide, to silicon alkoxide solution or a water glass solution for a long time, Slide glass is immersed into this particulate dispersed solution, this is pulled up very slowly (a part for 50-75-cm/), and dryness and the thin film integrated circuit silica which carries out distributed content of the metal oxide particle inside at this slide glass top are formed by calcinating.

[0010]Since according to this art the metal oxide particle is included by the silica of the thin film integrated circuit and that surface is not exposed, the problem which deteriorates constituents, such as cosmetics, presupposes that it was solved. However, the method of making the liquid membrane of thin film integrated circuit silica form on [, such as slide glass proposed, ] monotonous, and drying this is a method of essentially producing a \*\*\*\* small quantity in laboratory, and cannot be applied to industrial production at all.

According to the place which this invention persons examined, the ultraviolet shielding function of the obtained thin film integrated circuit silica will worsen unexpectedly only by making somewhat quick pull up velocity of the slide glass from silicon alkoxide solution, for example. About this, the liquid thickness on slide glass is presumed whether according to the cause of changing easily, inside thin film integrated circuit silica, doesn't a metal oxide particle distribute enough substantially, but is condensing considerably.

Thus, when a metal oxide particle does not distribute uniformly inside thin film integrated circuit silica, the inventors of this patent are also just going to accept that an ultraviolet shielding function falls. That is, it is very difficult to scale up how the pull up velocity of slide glass must perform thickness control of thin film integrated circuit silica, and to perform it by a technical scale in practice.

[0011]moreover -- in JP,5-75684,B -- scaly silica and a scaly titanium dioxide -- equivalent \*\*\*\* -- the transparent mixed oxide is proposed. This mixed oxide mixes each colloidal solution of silica and a titanium dioxide, freezes it, and forms a scaly mixed oxide among the crystal grain children of water. It is difficult to control the dispersion state of silica and a titanium dioxide by this method, and it very difficult to pull out efficiently the ultraviolet-rays shielding effect by a titanium dioxide.

[0012]Therefore, it must be said that it is not in practice so easy to grant the efficient ultraviolet-rays shielding effect corresponding to the charge of combination when the ultraviolet shielding agent these-proposed is blended with a cosmetic.

[0013]

[Problem to be solved by the invention]The purpose of this invention uses as a substrate (matrix) the aggregate particle which consists of scaly silica, It is providing the cosmetic outstanding on this surface and the surface in a gap at the ultraviolet-rays cover performance which is made to support the metal oxide particle which has an ultraviolet shielding function etc., considers it as a complex, and blends this complex with a cosmetic and which is not in the former, or a using feeling.

[0014]

[Means for solving problem]When this invention persons inquire wholeheartedly in view of such a situation, scaly silica forms the unique-shaped aggregate particle which condenses and has many gaps, In a state with actually micro the mere mixture and the

thing which is visible apparently which were produced by this scaly silica by mixing mechanically metal oxide particles, such as a titanium dioxide and a zinc oxide, It found out that it was in the unexpected state where this metal oxide particle arranges with very sufficient dispersibility to the surface and the gap inner surface of this silica aggregate particle, and is supported. Therefore, when the complex which has the ultraviolet-rays shielding effect outstanding in itself etc. was formed and this was blended with the cosmetic, it finds out that it can make with the very desirable cosmetic which has the outstanding ultraviolet-rays shielding effect and using feeling, and came to complete this invention.

[0015]That is, the following cosmetics are provided if this invention is followed. Namely, the cosmetic which blended the silica metal oxide particle complex characterized according to the conditions of (1) - (3) below.

(1), [ said complex ] [ on the surface of the silica aggregate particle which has a gap in which a scaly silica primary particle is formed by overlapping irregularly, and this surface in a gap ] The metal oxide particle is supported and, [ (2) this metal oxide particle ] they are one sort or two sorts or more of particulates chosen from the group which consists of a titanium dioxide, a zinc oxide, cerium oxide, iron oxide, and a zirconium dioxide -- (3) -- the weight percentage of the metal oxide particle in said complex gross weight is 1 to 80 weight %. [ and ]

[0016]

[Mode for carrying out the invention]Hereafter, this invention is explained in detail.

[0017]In this invention, the silica aggregate particle which supports a metal oxide particle on the surface is an aggregate particle which is formed by scaly silica primary particles overlapping irregularly and which has a gap.

[0018]. [ the silica aggregate particle itself formed by such scaly silica primary particles overlapping ] What is called the silica X ( $\text{Si O}_2\text{-X}$  is displayed below.), the silica Y ( $\text{Si O}_2\text{-Y}$  is displayed similarly.), etc. are called, and the existence is already known as an object of scientific research from the former.

[0019]That is, these silica X grade is a weak crystalline phase which carries out hydrothermal processing of the amorphism (amorphous) silica, and is produced in the process in which a cristobalite and quartz (quartz watch) are made to form and which is an interim or metastable phase and should also be called quality of a quasicrystal of silica. Although X diffraction patterns differ, the silica X and the silica Y resemble closely, and all are preferred for the purpose of this invention, and they can use the particle appearance observed with an electron microscope.

[0020]The process of the conventional typical silica X grade uses a silica gel (silica xerogel), Aerosil, etc. as a starting material, [ Heydemann which carries out hydrothermal processing of this and found out the silica X first ] Sedimentation nature silica and Aerosil (amorphous silica of the ultrafine particle produced by carrying out high temperature thermal cracking of  $\text{SiCl}_4$ ) are used as a starting material, The silica X has been obtained by carrying out hydrothermal processing of this by 180 degreeC in autoclave for 1.5 to 24 days (Heydemann, A., Beitr.Mineral.Petrogr., 10,242-259 (1964)).

[0021]On the other hand, it is 145-155degreeC in solution, such as NaOH, using the silica gel of specific surface area [ Mitsyuk and others / of 600-700 m<sup>2</sup>/g as a starting material about the silica Y, The silica Y has been obtained by carrying out hydrothermal processing for 200 to 220 hours (Mitsyuk and B.A.et al.Geochem.Int.13,101-111 (1976)),

Kitahara and others uses the silica gel (Wako Pure Chem silica gel G) of specific surface area [ of about 600 m<sup>2</sup>/g as a starting material, and, [ in NaCl content KOH solution ] The silica Y has been obtained by carrying out hydrothermal processing by 150-160 degreeC for 70 to 170 hours (Kitahara.S.et al.Proc.Inst.Symp.Hydrotherm.React, 1st (1983)).

[0022][ as a scaly silica primary particle used by this invention ] 0.001-1 micrometer of the thickness is 0.01-0.5 micrometer preferably, The ratio (aspect ratio) of the longest length of a scaly plate to thickness is [ at least 10 and the ratio / still more preferably as opposed to / 30 or more / 50 or more and thickness preferably / of the minimum length of a scaly plate ] at least 3 and the scaly silica which has 20 or more still more preferably ten or more preferably.

[0023]When the thickness of a ramentum board is less than 0.001 micrometer, the mechanical strength of a ramentum board becomes insufficient and it is not desirable. Since there is a possibility that spreading nature when it blends with a cosmetic may become less enough, on the other hand when the thickness of a ramentum board becomes larger than 1 micrometer, it is not desirable. When an aspect ratio is less than ten, since there is a possibility that spreading nature may become similarly enough less, it is not desirable.

[0024]As for the latter, although the maximum in particular of the ratio of the longest length to thickness and the ratio of the minimum length is not specified, as for the former, 200 or less are [ 300 or less ] preferably practical, and 100 or less are [ 150 or less ] preferably practical.

[0025]As mentioned above, the thickness of the scaly silica said to this invention and especially length mean the average value about the primary particle, unless it refuses.

[0026]Here, what is necessary is just to have a thin tabular form substantially as it is scaly, and still more nearly partially or on the whole, this may bend, or may be twisted.

[0027]Especially as a manufacturing method of scaly silica, it does not limit and arbitrary methods can be adopted. [ for example the water glass adjusted to suitable SiO<sub>2</sub> concentration as indicated by JP,H2-258615,A ] After and carrying out gelling dryness by CO<sub>2</sub> gas, autoclaving is carried out in the state where it was immersed into the caustic soda aqueous solution, and the method by finally failing to scratch from a steel plate can be adopted. [ on a steel plate ]

[0028]However, they are the following manufacturing methods that this invention persons have proposed by Tokuganhei9-364855 more preferably. If this method is followed, the primary particle of this shape not only of a scaly silica primary particle but ramentum has the advantage that the silica aggregate particle which welds mutually and has a gap formed by overlapping irregularly is obtained as it is.

[0029]That is, it is the method of carrying out hydrothermal processing of the silica hydrogel under existence of alkali metal salt. As silica hydrogel here, [ a silicic acid alkaline aqueous solution and a mineral acid aqueous solution ] Introduce from a discrete feed port in the container provided with the injection hole, and it mixes homogenously momentarily, the silica which is not less than 130 g/l and pH 7-9 in SiO<sub>2</sub> concentration conversion -- make a sol generate and this is made to emit into gas media, such as air, from the above-mentioned injection hole immediately, and while drawing a parabola and making it stay in the air, it is made to gel in the air The ageing tank which filled water is put on the fall point, and you make it fall here and it is made to ripe for several minute -

number 10 minutes.

[0030] Acid is added to this, pH is lowered and what was washed is spherical silica hydrogel desirable for using it by this invention.

[0031] Particle sizes are the spherical particles which have elasticity by the transparency which is the well equal particle diameter of about 2-6  $\mu\text{m}$ , and the obtained silica hydrogel contains about 4-time water by the weight ratio to  $\text{SiO}_2$  in an example (namely,  $\text{SiO}_2$  20 weight %, about 80 weight % of moisture).

[0032] Such silica hydrogel is used as a starting material, this is heated in heating pressure vessels, such as autoclave, hydrothermal processing is performed, and a scaly silica primary particle makes the irregularly overlapping silica aggregate particles generate in this invention.

[0033] In that case, preferably, although this spherical silica hydrogel may be used as it is, since pulverization or the thing which carried out coarse grinding and was made into the particle diameter of about 0.1-3  $\mu\text{m}$  can perform churning in autoclave more effectively, it is desirable.

[0034] although it is not what limits the form especially as autoclave -- at least -- a heating method and a stirring means -- and what is necessary is just to have a temperature measurement means preferably

[0035] In order to carry out hydrothermal processing of the silica hydrogel, when treating autoclave, it is preferred by adding the purified water like distilled water or ion exchange water to adjust silica hydrogel concentration to the range of desired. Although the total silica concentration in the treating solution in autoclave is chosen in consideration of churning efficiency, the rate of crystal growth, a yield, etc., it is usually 1 to 30 weight % as  $\text{SiO}_2$  on all the preparation materials standards. The total silica concentration in a treating solution is the value which also added the silica carried into this by the system with liquid glass etc. here, when the total silica concentration in a system is meant and liquid glass etc. are used not only as the silica in silica hydrogel but as alkali metal salt.

[0036] The silica / alkali molar ratio in hydrothermal processing ( $\text{SiO}_2/\text{Me}_2\text{O}$ ) have the preferred range of 4-15 mol/mol. Here, Me shows an alkali metal.

[0037] A range of hydrothermal processing has preferred 150-220 degreeC.

[0038] Although the hydrothermal processing time required may change by hydrothermal treatment temperature, silica / alkali molar ratio, etc., it is usually about 5 to 50 hours.

[0039] After an end of hydrothermal processing, a hydrothermal treated product is picked out from autoclave, and is filtered and washed. As for particles after flush processing, it is preferred that pH when it is considered as 10weight % of water slurry is 5-9, and more desirable pH is 6-8.

[0040] When a cake of this hydrothermal treated product is microscopically seen in the state where it filtered and washed, it turns out that a silica aggregate particle (secondary particle) which each scaly primary particle comrades overlap and adhered is formed. That is, it is thought that a particle comrade welds most scaly silica primary particles obtained by this method in a course of crystal growth, they overlap irregularly mutually, and forms a secondary particle slack silica aggregate. This aggregate has the feature at a point of having many gaps formed when scaly silica overlaps irregularly in this way.

[0041] Although it dries after filtration and a flush, a drier in particular is not limited and can adopt arbitrary devices, such as a pneumatic conveyor dryer, a fluidized-bed-drying machine, a medium fluidized drying machine, a hot air dryer, and a spray dry drier. As

for drying temperature, it is usually preferred to carry out by a 50-300 degreeC grade. [0042][[Drawing 1](#)] is a scanning electron microscope (SEM) photograph in which the silica aggregate particle produced by doing in this way is shown, Scaly silica primary particles overlap irregularly and the state of forming the silica aggregate particle in which many gaps (an opening or a pocket) made by this lap exist is accepted clearly. this aggregate can take seemingly forms which boil many things according to a state and are expressed, such as the shape of a cabbage, the shape of an onion, the shape of a petal, and the shape of a bud.

[0043]That scaly silica particles overlap here irregularly means the lap in various spatial arrangement relations, such as a lap of not only when the field of two scaly particles laps completely, but a part of field, a part of field, a field, the neighborhood and the neighborhood, and the neighborhood, and, thereby, the gap of various forms is formed. When each scaly silica particles overlap further and unite on the aggregate particle surface generated in this way, while generating a new gap, naturally it is also considered that a bigger aggregate particle is formed.

[0044]In this invention, the metal oxide particle which has ultraviolet-rays cover performance etc. on the surface of the silica aggregate particle which consists of a scaly silica primary particle formed in this way is supported. This support operation is easily made by adding the metal oxide particle which has an ultraviolet shielding function etc. to a silica aggregate particle, and mixing to it.

[0045]The titanium dioxide, the zinc oxide, cerium oxide, the iron oxide (ferrous oxide, ferric oxide), and the zirconium dioxide which were excellent in the safety to a human body as a metal oxide particle which has an ultraviolet shielding function are preferred.

[0046]Depending on the case, it is usable also in the other metal oxide. For example, chromic oxide, an aluminum oxide, magnesium oxide, silver oxide, Copper I oxide, copper oxide, the first cobalt of oxidization, tricobalt tetroxide, oxidization dibasic cobalt, The first nickel of oxidization, oxidization dibasic nickel, thorium oxide, tungstic oxide, They are molybdenum oxide, manganese dioxide, a manganese trioxide, uranium oxide, thorium oxide, germanium oxide, stannous oxide, flowers of tin, lead monoxide, a red lead, anhydrous plumbic acid, antimonous oxide, antimony pentoxide, a bismuth trioxide, etc.

[0047]The particulates of the metal oxide in this invention include what is called what is called an ultrafine particle, and the size (particle diameter) of a primary particle is a 0.002-0.5-micrometer thing. And 0.01-0.5 micrometer is preferred and what is 0.03-0.3 micrometer is still more preferred. If set to less than 0.002 micrometer, since a specific surface area will increase, it will be in a condensed state from the start, addition mixture of the particulates cannot be carried out in the state where it distributed enough at a silica aggregate particle and a desired ultraviolet shielding function etc. will not be obtained, it is not desirable. If 0.5 micrometer is exceeded, it cannot be made to support stably on the surface of a silica aggregate particle in which not only the ultraviolet shielding function etc. which the particulate itself has fall, but this metallic-compounds particulate is a substrate, or the surface in a gap, and is not desirable.

[0048]What is a globular form fundamentally as the shape of particle of the particulates of the metal oxide in this invention will be preferred, and particle diameter will express a diameter in that case. A deer shall be carried out, it shall be a case of an unfixed type or particles of a non-globular form like a needlelike form, and the designation of the overall

diameter shall be carried out to particle diameter in that case.

[0049]As for the loadings of the metal oxide particle in a complex, 1 to 80 weight % is preferred, and especially its 2 to 70 weight % (metal oxide + silica composite total weight standard) is preferred. The function, for example, an ultraviolet-rays shielding effect, in which the metal oxide particle should play in less than 1 weight % in this is not fully obtained, and it is not preferred. Since an ultraviolet-rays shielding effect etc. not only decrease, but it is difficult to make a metal oxide particle support with sufficient dispersibility on the surface of a silica aggregate particle or the surface in a gap if 80 weight % is exceeded, this metallic oxide particle causes condensation and a carrying state becomes unstable on the other hand, it is not desirable.

[0050]Although the metal oxide particle used by this invention may be compounded by a publicly known method, respectively, when what has various particle diameter is available and generally already uses these as they are as a commercial item about each, it can attain the purpose of this invention enough.

[0051]The support to a silica aggregate particle is easily made by adding such a metal oxide particle and mixing, as described above.

[0052]Mixture is performed by the solids-mixing machine usually used. For example, a cylindrical mixer, a cone type mixer, a V shaped rotary mixer, Y type mixer, a double cone type mixer, Container rotation type mixers, such as a method form mixer of erection; A ribbon type mixer, a screw type mixer, any of inside churning type mixers of container rotation, such as inside churning type (internal rotation wings type) mixer of container fixation; reverse rotation Mueller types, such as a plow type mixer, the Muller type mixer, a monopodium rotor type mixer, and a double spindle rotor type mixer, -- although -- it is used suitably. It may be a mixer of the form of making a container shaking. In order in the case of a container rotation type mixer to give stronger shearing force to a mixture, to prevent a particulate comrade's condensation and to enlarge mixing speed, it is preferred to make an alumina ball, a zirconia ball, etc. live together inside depending on the case.

[0053]Although mixing time may change with the form of the mixer to be used, each particle diameter of the silica aggregate particle to process or a metal oxide particle, shape, density, a charge, a humidity coefficient, degrees of mixing made into the purpose, etc., they are usually 5 minutes - about 10 hours.

[0054]In this invention, although a mixing process is based on carrying out addition mixture of the metal oxide particle dry to the dry silica aggregate particle, it does not necessarily adhere to this. For example, it is also possible to add a metallic oxide particle to this and to perform a mixing process, without drying the humid cake which consists of a silica aggregate particle which is a hydrothermal treated product. When using a humid cake, it is preferred to use what is called kneaders, such as a kneader mixer, a pony mixer, a Mueller mixer, an internal mixer, and a roll. If the kneader provided with the drier is used, mixture and dryness can be performed simultaneously and it is more convenient. In order to prevent condensation as a metal oxide particle, the thing of the sol state which carried out high dispersion into the suitable liquid medium is marketed, but it is preferred also about this to use a kneader type mixer.

[0055][Drawing 2], It is the SEM photograph which blended 16 weight sections of titanium dioxide particulates (the product made from Ishihara Techno, brand name;TTO-55A, mean particle diameter of 0.03-0.05 micrometer) with silica aggregate particle 84



weight section shown in [drawing 1], and was mixed for 30 minutes.

[0056][ a titanium dioxide particulate ] [ on the surface of the silica aggregate particle which has a gap in which a scaly silica primary particle is formed by overlapping irregularly, or this surface in a gap ] Most titanium dioxide particulates which distribute here and there, are in the state where it is supported, separate from the silica aggregate particle surface and are in the state of isolation are not accepted. The silica aggregate particle was not cracked so greatly that it can check visually, but it turned out that the original shape is held mostly.

[0057]Since it also has the following characteristics, the silica aggregate particle obtained by the method proposed by this invention persons is preferred especially when the use adds to a cosmetic.

[0058]. Namely, this silica aggregate particle is indicated to the measurement-of-working-environment guidebook (volume on mineral particulate relation Ministry of Labor Industrial Safety and Health Department environmental improvement room) in accordance with the measurement-of-working-environment standard shown in the notification about the Ministry of Labor safety-and-hygiene method. Less than 10%, the measured value of isolation silicic acid of the crystal form made into the cause which causes silicosis measured by the analyzing method consists of still more desirable less than (below detection limit) 2% and scaly silica of very few low crystals, and is preferably safe enough to a human body less than 5%.

[0059][ the particulate complex which made the scaly silica aggregate particle blended with the cosmetic of this invention support the metal oxide particle which has an ultraviolet shielding function ] It is very useful as an ultraviolet shielding agent for cosmetic combination, and can be used conveniently for the cosmetic for pure, a hair cosmetic, a basic cosmetic, the charge of face make up, sun tanning and a sunscreen cosmetic, a nail cosmetic, an eyeliner cosmetic, a lips cosmetic, a mouth cosmetic, and the cosmetic for bathing. Namely, [ as a cosmetic with which this ultraviolet shielding agent for cosmetic combination is blended suitably ] Foundation, presto powder, eye shadow, an eyeliner, The cosmetic currently manufactured from the former, such as nail enamel, lip colors, a lip cream, lip GUROU, sun-block cream, suntan oil, hair styling gell, and water grease, is mentioned as a desirable thing.

[0060]In this invention, as for a blending ratio to a cosmetic of a particulate complex (silica metal oxide particle complex) which made a metal oxide particle which has an ultraviolet shielding function in such a scaly silica aggregate particle support, 1 to 50 weight % is preferred, and especially its 2 to 40 weight % is preferred. Since chlorosis will become remarkable and also a possibility of resulting in change to a using feeling of a cosmetic will become high if a protective effect from ultraviolet rays sufficient at less than 1% is not acquired and 50 weight % is exceeded, it is not desirable.

[0061]In this invention, a particulate complex which made a metal oxide particle which has an ultraviolet shielding function in a scaly silica aggregate particle support can be used like an extender pigment and/or a pearl pigment which are inorganic pigments currently used from the former as an ultraviolet shielding agent for cosmetic combination. As mentioned above, although charges of face make up, such as foundation, face powder, solid face powder, cheek red, and eye shadow, a sunscreen cosmetic, a foundation cosmetic, etc. can be mentioned as an example of a cosmetic which blended this composite particle, it is not limited to these.

[0062]This particulate complex specifically Paraffine, ceresin, a liquid paraffin, Castor oil, Japan wax, lanolin, yellow bees wax, Kalna Barrow, a candelilla low, Vegetable oil, vegetable oil ester, fatty acid, higher alcohol, And oil and fats, such as squalane. Or lows; Both ionic surfactant; like cationic surfactant; alkyl dimethyl ammonium betaine like anionic detergent; alkyl trimethyl ammonium chloride like alkylsulfuric acid ester sodium salt. and surface-active agent [, such as nonionic detergent like polyoxyethylene alkyl ether, ]; -- resin; -- dispersing agent; -- pigment; -- spice; -- antiseptic; -- alkylene glycol; -- color pigment; -- inorganic powder; -- organic powder; -- triethanolamine;. [ materials /, such as a solvent / which are usually used / cosmetic ] A desired cosmetic can be obtained by mixing.

[0063]In this invention, the particle surface of the above-mentioned ultraviolet shielding agent for cosmetic combination can use conveniently what carried out the surface treatment by silicone oil, a silane coupling agent, a titanate coupling agent, alcohol, a surface-active agent, other finishing agents, and a surface modifier. When that to which it processed by these and hydrophobing of the surface was carried out is blended with a cosmetic, it has the effect of raising makeup \*\*\*\*\*.

[0064]Hereafter, an embodiment explains the mode of concrete operation of this invention. Although it is needless to say, it is for these clarifying technical meaning of this invention more, and technical scope of this invention is not restrictively interpreted by these.

[0065]

[Working example][Embodiment 1] So that total  $\text{SiO}_2$  /  $\text{Na}_2\text{O}$  molar ratio in a system may be set to 12.0 to the autoclave (an electric heat type, with anchor type agitating blades) of capacity [ of 5000 cm ] <sup>3</sup>, The silica hydrogels ( $\text{SiO}_2$  18.6 weight %) 2 and 371g with a particle diameter of 4.0 mm, a sodium silicate solution ( $\text{SiO}_2$  28.87 weight % and  $\text{Na}_2\text{O}$  -- 9.38 weight %)  $\text{SiO}_2/\text{Na}_2\text{O} = 3.18$  mol/mol 551 g was taught, the ion exchange water 1 and 078g was added to this, and hydrothermal processing was performed by 190 degreeC for 8 hours, agitating at 20 rpm. The total silica concentration in a system was 15.0 weight % as  $\text{SiO}_2$ .

[0066]The hydrothermal treatment object was dried after filtration and a flush using the medium fluidized drying machine, and 532 g of impalpable powder was obtained.

[0067]When the generation phase was identified for generation impalpable powder with the powder X diffraction spectrum, the peak which corresponds to the ASTM card number 31-1234, 34-1382, and 37-386 in addition to the main peak of the silica X characterized by a peak (2theta=4.9 degree and 26.0 degrees) was accepted. When the oil absorption (JISK5101) of this impalpable powder was measured, they were 106 ml/100 g.

[0068]When the shape of the product was observed by SEM, the shape of the primary particle is scaly and having formed the silica aggregate particle which these overlaps irregularly and has a gap was admitted. As for the aspect ratio, the aspect ratio of 125 and the average minimum length of the board was [ average longest length of the board / as opposed to this thickness to the average thickness of 0.04 micrometer of the primary particle of the shape of this ramentum ] 40 in 1.6 micrometers at 5 micrometers. the aspect ratio was photoed by the scanning electron microscope -- enough -- the scale etc. were applied to many scaly primary particle images, and it asked by measuring thickness, the longest length, and the minimum length.

[0069]When the amount of crystal form isolation silicic acid of this impalpable powder

was measured by the analyzing method, it turned out that it is below a detection limit (less than 2%).

[0070]the next -- the above-mentioned silica aggregate particle and a titanium dioxide particulate (the product made from Ishihara Techno.) Brand name; TTO-51A, the mean particle diameter of 0.01-0.03 micrometer, and a zinc oxide particulate (the Sumitomo Osaka Cement make, brand name; ZnO-310, mean particle diameter of 0.03 micrometer), [ the total weight of 5.0 g ] and silica: -- titanium dioxide: -- wt. ratio [ of a zinc oxide ] = -- weighing capacity extraction being carried out and so that it may become 68 weight % : 8 weight % : 24weight %, It put into the shaking type powder-mixing machine Made from SHIMMARU Enterprises (brand name; turbular shaker mixer T2C type and container capacity 100cm<sup>3</sup>, with an alumina ball), and mixed for 30 minutes.

[0071]The place which observed the impalpable powder after mixture by SEM, It is in the state where it is shown in [drawing 2], and it was admitted that the surface of a silica aggregate particle and the surface in a gap distributed very uniformly, and the titanium dioxide and the zinc oxide particulate were supported. It turned out that a silica aggregate particle is not cracked so greatly that it can check visually, but the original shape is held mostly.

[0072]Again[Drawing 3] is a TEM photograph of an ultrathin section with a thickness of 100 A which started this using the microtome, after it \*\*\*\* this impalpable powder to the epoxy resin of a fluid and resin solidifies. A titanium dioxide particulate and a zinc oxide particulate enter in the very narrow gap (an opening or a pocket) in which scaly silica was formed by overlapping irregularly, so to speak, it is caught by the gap, and signs that they are connected moniliform are observed clearly.

[0073]On the other hand, it is each about the TEM photograph of the respectively independent particles of a titanium dioxide particulate and a zinc oxide particulate.

[Drawing 4] \*\*It is shown in [drawing 5]. These are in the state where many particles condensed at a glance so that clearly, and the primary particle dissociates with sufficient dispersibility, and they do not exist. As opposed to this, In the silica particle complex of this invention shown in [drawing 3], situations completely differ, the state where each primary particle is connected moniliform and the titanium dioxide particulate and the zinc oxide particulate are arranged is observed clearly, and it turns out that it is supported with very sufficient dispersibility.

[0074]Next, the vaseline 1.12g and 0.48 g of liquid paraffins are added to this impalpable powder 0.4g, Put between two 2-mm-thick quartz plates, a paste which could use 3 rolls, distributed and was obtained was made to spread until thickness was set to 25 micrometers, and permeability of 200-700-nm wavelength light was measured using recording spectrophotometer. Not less than 400 nm is a light range, and 400-280 nm is an ultraviolet light field. It is shown that an ultraviolet-rays shielding effect is so good that permeability in an ultraviolet light field is small, and it is shown that transparency observed with the naked eye is high, so that permeability in a light range is large. In 500 nm, a result was 10.5% of permeability in 66.0% of permeability, and 360 nm, was 8.7% of permeability in 320 nm, and was [ at 79.2% of permeability, and 400 nm ] 8.0% of permeability in 290 nm.

[0075]Like the above, visible light transmittance of obtained particulate complex powder was quite high, and, in addition to this, the very desirable characteristic was shown as an ultraviolet shielding agent blended with a cosmetic that permeability in an ultraviolet

region is low.

[0076]As mentioned above, this particulate complex powder was used and lip GUROU shown in cake makeup shown in Embodiment 3 which blended this, emulsified type foundation shown in Embodiment 5, and Embodiment 7 was manufactured.

[0077][Embodiment 2] the silica aggregate particle manufactured in Embodiment 1, and a titanium dioxide particulate (the product made from Ishihara Techno.) Brand name; TTO-51A, the mean particle diameter of 0.01-0.03 micrometer, and a zinc oxide particulate (the Sumitomo Osaka Cement make, brand name; ZnO-310, mean particle diameter of 0.03 micrometer), [ the total weight of 5.0 g ] and silica: -- titanium dioxide: - - wt. ratio [ of a zinc oxide ] = -- weighing capacity extraction being carried out and so that it may become 40 weight % : 15 weight % : 45weight %, It put into the shaking type powder-mixing machine Made from SHIMMARU Enterprises (brand name; turbular shaker mixer T2C type and container capacity 100cm<sup>3</sup>, with an alumina ball), and mixed for 30 minutes.

[0078]Next, the vaseline 1.12g and 0.48 g of liquid paraffins are added to this impalpable powder 0.4g, Put between two 2-mm-thick quartz plates, the paste which could use 3 rolls, distributed and was obtained was made to spread until thickness was set to 25 micrometers, and the permeability of 200-700-nm wavelength light was measured using recording spectrophotometer. In 500 nm, the result was 4.3% of permeability in 57.2% of permeability, and 360 nm, was 3.1% of permeability in 320 nm, and was [ at 72.4% of permeability, and 400 nm ] 2.7% of permeability in 290 nm.

[0079]Like the above, the visible light transmittance of the particulate complex powder of obtained this invention was quite high, and, in addition to this, the very desirable characteristic was shown as an ultraviolet shielding agent blended with a cosmetic that the permeability in an ultraviolet region is low.

[0080]As mentioned above, this complex powder was used and a sunscreen cream shown in Embodiment 6 which blended this, and presto powder shown in Embodiment 8 were manufactured.

[0081][Embodiment 3] Particulate complex powder of Embodiment 1 is used and a blending ratio of these complex fine particles is [ a blending ratio of this complex powder and the soft sericite SH (made by great Nippon Kasei Chemical Co., Ltd.) ] a total of 36.90weight % 8.20weight %, Cake makeup of composition as shown in [Table 1] was prepared.

[0082]The method of preparation of cake makeup was performed as follows. That is, a powder component is mixed first, it teaches after pulverization a high-speed blender through a grinder, and a binder component, an antiseptic, etc. are mixed to this, and paints are added further and it mixes uniformly. After processing this with a grinder and adjusting a particle size through sieve, compression molding is carried out with a container of a metal dish, and cake makeup is obtained.

[0083]Next, the ultraviolet-rays defense effect of obtained cake makeup and a using feeling were evaluated as follows.

[0084]The ultraviolet-rays defense effect, [ a tape (a TRON SUPOA tape; made by Sumitomo 3M) ] Cake makeup is uniformly applied so that it may become 2mg/cm<sup>2</sup> or 2microl/cm<sup>2</sup>, An ultraviolet-rays defense factor of these six application parts was measured using SPF-290 analyzer (made by OPUTOMETO Rix Corp.), and the sun protection factor was computed using exclusive software for SPF analyzers (SPF

OPERATING SOFTWARE VERSION 1.5120492).

[0085]The defense exponential curve in an ultraviolet region obtained by SPF-290 analyzer measurement of the obtained foundation It is shown in [drawing 6].

[0086]In a figure, it is shown that the ultraviolet-rays defense effect has the large one where a vertical axis is absorption intensity and this figure is higher (after appearance).

[Drawing 7] \*\*The same may be said of [drawing 8]. .

[0087]Next, the using feeling of the obtained cake makeup was evaluated.

[0088]Sensory analysis was done [ using feeling ] about the elongation and adhesion to the skin of a cosmetic, a feeling of a result of cosmetics, and the durability after an application. I get a female panelist (12 persons) to make up cake makeup with the usual directions for use, the elongation and adhesion to the skin of a cosmetic, a feeling of a result of a cosmetic, and the durability (messy makeup) after an application -- 5; -- very good 4; -- good 3; -- usually -- 2; -- a little bad 1; -- I got five steps of bad things to estimate Compute the average mark per panelist from the evaluated total score, and make this into an evaluating point. The judgment numerals shown in [Table 2] were attached.

[0089]The ultraviolet-rays defense effect and the evaluation result of a using feeling It is shown in [Table 3].

[0090][Comparative example 1] The particulate complex powder of Embodiment 1 blends only the soft sericite SH 36.90weight %, without using it, The cake makeup of composition as shown in [Table 1] was prepared by the same method as Embodiment 3.

[0091]The same method as Embodiment 3 estimated the ultraviolet-rays defense effect of the obtained cake makeup, and the using feeling. Evaluation resultIt is shown in [Table 3].

[0092]The defense exponential curve in an ultraviolet region obtained by SPF-290 analyzer measurement of the obtained foundation It is shown in [drawing 7].

[0093][Comparative example 2] So that it may become the same loadings as the complex powder used in Embodiment 1, without using it, [ the particulate complex powder of Embodiment 1 ] a silica aggregate particle -- 5.57 weight % and a titanium dioxide particulate (the product made from Ishihara Techno.) Brand name; TTO-51A and the mean particle diameter of 0.01-0.03 micrometer 0.66 weight %, And 1.97 weight % is respectively blended for a zinc oxide particulate (the Sumitomo Osaka Cement make, brand name;ZnO-310, mean particle diameter of 0.03 micrometer) individually, and a blending ratio with soft sericite is a total of 36.9weight %, The cake makeup of composition as shown in [Table 1] was prepared by the same method as Embodiment 3.

[0094]The same method as Embodiment 3 estimated the ultraviolet-rays defense effect of obtained cake makeup, and a using feeling. An evaluation result It is shown in [Table 3].

[0095]A defense exponential curve in an ultraviolet region obtained by SPF-290 analyzer measurement of obtained foundation It is shown in [drawing 8].

[0096]

[Table 1]

構 成 成 分		配合目的	実施例3	比較例1	比較例2
粉 体 部	シリコン処理タルク	基剤	4.74	4.74	4.74
	シリコン処理酸化チタン	被覆顔料	4.10	4.10	4.10
	シリコン処理マイカ	基剤	24.60	24.60	24.60
	ソフトセリサイトSH	基剤	28.70	36.90	28.70
	ナイロンパウダー	延展性賦与	9.84	9.84	9.84
	シリカ凝集体粒子	延展性賦与			5.57
	二酸化チタン(TiO-51A)	紫外線防御			0.66
	酸化亜鉛 (ZnO-310)	紫外線防御			1.97
	実施例1の微粒子複合体	紫外線防御・延展性賦与	8.20		
	シリコン処理黄酸化鉄	着色剤	1.23	1.23	1.23
	シリコン処理ベンガラ	着色剤	0.41	0.41	0.41
	シリコン処理黒酸化鉄	着色剤	0.10	0.10	0.10
	結 合 剤 部	ジメチルポリシロキサン	結合剤基材	13.20	13.20
サラコスHS*		結合剤基材	1.20	1.20	1.20
スクワラン		結合剤基材	1.20	1.20	1.20
サラコス913**		結合剤基材	2.40	2.40	2.40
防腐剤 (パラベン類)		防腐剤	0.08	0.08	0.08
全量			100.0	100.0	100.0

\* サラコスHS ; ヒドロキシステアリン酸コレステリル( 日清製油 (株) 製 )

\*\*サラコス913 ; イソノナン酸イソトリデシル( 日清製油 (株) 製 )

[0097]

[Table 2]

評 価 点	判 定
5.0～4.5	◎
4.5未満～3.5	○
3.5未満～2.5	△
2.5未満	×

An evaluation result of ultraviolet-rays cover performance and a using feeling of cake makeup of Embodiment 3 and the comparative examples 1 and 3 Although shown in [Table 3], as compared with the comparative examples 1 and 2, cake makeup obtained in Embodiment 3 has the high ultraviolet-rays defense effect, and was understood that a using feeling is also good.

[0098]

[Table 3]

評 価 項 目	実施例3	比較例1	比較例2
( in vitro ) SPF	10.0	5.7	7.6
化粧料の肌への伸び・付着性	◎	△	○
化粧料の仕上がり感	◎	△	△
塗布後の持続性	◎	△	○

[0099][Embodiment 4] So that total  $\text{SiO}_2 / \text{Na}_2\text{O}$  molar ratio in a system may be set to 7.0 to the autoclave (an electric heat type, with anchor type agitating blades) of capacity [ of  $5000 \text{ cm}^3$  ], preparing the silica hydrogels ( $\text{SiO}_2$  18.6 weight %) 3 and 226g with a particle diameter of 3.0 mm and 238 g of aqueous sodium hydroxide (48.0 weight % of  $\text{NaOH(s)}$ ) -- this -- the ion exchange water 536g -- in addition, hydrothermal processing was performed by 180 degreeC for 6 hours, agitating at 50 rpm. The total silica concentration in a system was 15.0 weight % as  $\text{SiO}_2$ .

[0100]The hydrothermal treatment object was dried after filtration and a flush using the medium fluidized drying machine, and 450 g of impalpable powder was obtained.

[0101]When the generation phase was identified for generation impalpable powder with the powder X diffraction spectrum, the ASTM card number 35-63 and the peak applicable to 25-1332 were accepted in addition to the main peak of the silica Y characterized by a main peak (2theta=5.6 degree, 25.8 degrees, and 28.3 degrees). When the oil absorption (JISK5101) of this impalpable powder was measured, they were 102 ml/100 g.

[0102]When the shape of the product was observed by SEM, like Embodiment 1, the shape of the primary particle is scaly and having formed the silica aggregate particle which these overlaps irregularly and has a gap was admitted. As for the average average longest length of the board [ as opposed to this thickness to the average thickness of 0.05 micrometer of the primary particle of the shape of this ramentum ], 80 and the average minimum length of the board of the aspect ratio were 1.5 micrometers in 4 micrometers, and the aspect ratio was 30.

[0103]When the amount of crystal form isolation silicic acid of this impalpable powder was measured by the analyzing method, it turned out that it is below a detection limit (less than 2%).

[0104]the next -- the above-mentioned silica aggregate particle and a titanium dioxide particulate (the product made from Ishihara Techno.) Brand name; TTO-51A, the mean particle diameter of 0.01-0.03 micrometer, and a zinc oxide particulate (the Sumitomo Osaka Cement make, brand name; ZnO-310, mean particle diameter of 0.03 micrometer), [ the total weight of 5.0 g ] and silica: -- titanium dioxide: -- wt. ratio [ of a zinc oxide ] = -- weighing capacity extraction being carried out and so that it may become 68 weight % : 8 weight % : 24weight %, It put into the shaking type powder-mixing machine Made from SHIMMARU Enterprises (brand name; turbular shaker mixer T2C type and container capacity  $100\text{cm}^3$ , with an alumina ball), and mixed for 30 minutes.

[0105]When the impalpable powder after mixture was observed by SEM, it was admitted that the surface of a silica aggregate particle and the surface in a gap distributed very uniformly, and the titanium dioxide and the zinc oxide particulate were supported. It turned out that a silica aggregate particle is not cracked so greatly that it can check visually, but the original shape is held mostly.

[0106]Next, the vaseline 1.12g and 0.48 g of liquid paraffins are added to the impalpable powder 0.4g, Put between two 2-mm-thick quartz plates, the paste which could use 3 rolls, distributed and was obtained was made to spread until thickness was set to 25 micrometers, and the permeability of 200-700-nm wavelength light was measured using recording spectrophotometer. In 500 nm, the result was 10.2% of permeability in 67.2% of permeability, and 360 nm, was 8.6% of permeability in 320 nm, and was [ at 80.0% of permeability, and 400 nm ] 7.9% of permeability in 290 nm.

[0107]Like the above, the visible light transmittance of the obtained particulate complex powder was quite high, and, in addition to this, the very desirable characteristic was shown as an ultraviolet shielding agent blended with a cosmetic that the permeability in an ultraviolet region is low.

[0108]The above-mentioned complex powder was used, and 8.20weight %, the blending ratio prepared cake makeup completely like Embodiment 3, except that the blending ratio of this complex powder and the soft sericite SH (made by great Nippon Kasei Chemical Co., Ltd.) was a total of 36.90weight %.

[0109]The place which evaluated the ultraviolet-rays protection quality and the using feeling of this foundation by the same method as Embodiment 3, (inch vitro) The sun protection factor has 4.8, 4.5 and 4.6, and the high ultraviolet-rays defense effect, and found that a using feeling was also good for each evaluating point of the elongation and adhesion to the skin of cosmetics about 10.3 and a using feeling, a feeling of a result of a cosmetic, and the durability after an application.

[0110][Embodiment 5] The particulate complex powder obtained in Embodiment 1 is blended, The emulsified type foundation of composition as shown in [Table 4] was prepared.

[0111]The method of preparation is as follows. In namely, the container which can teach the whole quantity The ingredient of (1) - (7) shown in [Table 4] is heated to 60 - 70 degreeC, it equalizes with homogenizer, the ingredient of (8) - (13) is added further, and it is made to distribute uniformly. After carrying out the uniform dissolution of the ingredient of (14) - (17) by 60 - 70 degreeC beforehand, it emulsifies by adding this for the ingredient of (1) - (13). This was equalized with homogenizer, it cooled below to 30 degreeC after that, the suitable container was filled up, and emulsified type foundation was obtained.

[0112]

[Table 4]



組成	重量%
(1) ポリエーテル変性シリコン( 乳化剤 )	2. 0
(2) セスキオレイン酸ソルビタン( 乳化剤 )	3. 0
(3) マイクロクリスタリンワックス( 稠度調整剤 )	10. 0
(4) イソノナン酸イソトリデシル( 基剤 )	10. 0
(5) スクワラン( 基剤 )	10. 0
(6) ジメチルシロキシポリメチルシロキサン( 安定剤 )	1. 0
(7) プロピルパラベン( 防腐剤 )	0. 1
(8) 二酸化チタン( 被覆顔料 )	8. 0
(9) タルク( 基剤 )	2. 0
(10) 実施例1の複合体粉末( 紫外線防御・延展性賦与 )	10. 0
(11) 黄酸化鉄( 着色剤 )	2. 0
(12) ベンガラ( 着色剤 )	0. 5
(13) 黒酸化鉄( 着色剤 )	0. 1
(14) 精製水( 基剤 )	32. 1
(15) 1, 3-ブチレングリコール( 保湿剤 )	8. 0
(16) メチルパラベン( 防腐剤 )	0. 2
(17) 硫酸マグネシウム( 安定剤 )	1. 0
合計	100. 0

The mileage to skin and adhesion were good, and were automatically finished in the sensibility carried out gently, and the obtained emulsified type foundation was excellent in durability. There was little skin irritation and the ultraviolet-rays defense effect was high.

[0113][Embodiment 6] The complex powder obtained in Embodiment 2 is blended, The sunscreen cream of composition as shown in [Table 5] was prepared.

[0114]The method of preparation is as follows. In namely, the container which can teach the whole quantity It emulsifies by adding the ingredient of (1)(8) which heated ingredient of - (7) to 75 - 85 degreeC, and carried out the uniform dissolution by 75 - 85 degreeC with another container to this - (12) shown in [Table 5]. After adding the complex powder (13) of Embodiment 2 furthermore, it equalizes with homogenizer. Then, it cooled below to 30 degreeC, the suitable container was filled up, and the sunscreen cream was obtained.

[0115]

[Table 5]

組成	重量%
(1) ステアリン酸( 乳化剤 )	4. 0
(2) 自己乳化型モノステアリン酸グリセリン( 乳化剤 )	3. 0
(3) セタノール( 補助乳化剤 )	2. 0
(4) サラシミツロウ( 稠度調整剤 )	3. 0
(5) オリーブ油( 基剤 )	5. 0
(6) スクワラン( 基剤 )	10. 0
(7) プロヒルバラベン( 防腐剤 )	0. 1
(8) ニューテール TE (乳化剤)(テトラキス(2-ヒドロキシエチル)エチルアンモニウム) *	1. 0
(9) プロピレングリコール( 保湿剤 )	7. 0
(10) ベントナイト( 安定剤 )	0. 5
(11) メチルバラベン( 防腐剤 )	0. 2
(12) 精製水( 基剤 )	49. 2
(13) 実施例2の複合体粉末( 紫外線防御・延展性賦与 )	15. 0
合計	100. 0

\* BASF社製

There was little skin irritation, the elongation to skin was also good, the makeup result was natural, the obtained sunscreen cream was excellent in durability, and its ultraviolet-rays defense effect was also high.

[0116][Embodiment 7] The complex powder obtained in Embodiment 1 is blended, Lip GUROU of composition as shown in [Table 6] was prepared.

[0117]The method of preparation is as follows. In the container which can teach the whole quantity The ingredient of (1) - (9) shown in [Table 6] is heated to 75 - 85 degreeC, and it dissolves uniformly. Subsequently, after adding each ingredient of (10) - (12) and distributing uniformly by DISUPA, it slushes and cools rapidly to a metallic mold and it is solidified. The joint thing was picked out from the mold, the container was loaded, and lip GUROU was obtained.

[0118]Elongation was good, the makeup result was natural, grace was maintained, obtained lip GUROU had few stimuli to a lip, and its ultraviolet-rays defense effect was high.

[0119]

[Table 6]

組成	重量%
(1) カルナウバロウ( ワックス )	4. 5
(2) キャンデリラロウ( ワックス )	9. 0
(3) セレシン( ワックス )	2. 5
(4) サラシミツロウ( ワックス )	1. 5
(5) カカオ脂( 基剤 )	4. 0
(6) ショ糖脂肪酸エステル( 基剤 )	2. 0
(7) ラノリン( 基剤 )	20. 0
(8) BHT( 酸化防止剤 )	0. 1
(9) 流動パラフィン( 基剤 )	44. 4
(10) 実施例1の複合体粉末( 紫外線防御・延展性賦与 )	5. 0
(11) 赤色3号アルミニウムレーキ( 着色剤 )	適 量
(12) 香料( 香調賦与 )	適 量
合計	100. 0

[0120][Embodiment 8] The complex powder obtained in Embodiment 2 is blended, The presto powder of composition as shown in [Table 7] was prepared.

[0121]The method of preparation is as follows. That is, powder component (1) - (7) is mixed and it grinds through a grinder. This is moved to a high-speed blender, (8) or (9) ingredient is added, and it mixes uniformly. After processing with the grinder and arranging a particle size through the sieve, the container of the metal dish performed compression molding and presto powder was obtained.

[0122]

[Table 7]

組成	重量%
(1) ワトセライト-6(基剤)(列ウ・ケイ素化が力焼結物) **	50. 0
(2) タルク( 基剤 )	17. 0
(3) N-ラウロイルリジン( 延展性・保湿性賦与 )**	5. 0
(4) 実施例2の複合体粉末( 紫外線防御・延展性賦与 )	20. 0
(5) 黄酸化鉄( 着色剤 )	2. 0
(6) 黒酸化鉄( 着色剤 )	0. 2
(7) ベンガラ( 着色剤 )	0. 7
(8) メチルパラベン( 防腐剤 )	0. 1
(9) メチルポリシロキサン( 結合剤 )	5. 0
合計	100. 0

\*大日本化成社製 \*\*味の素社製( 商品名: アミホープLL )

Elongation was good, the makeup result was natural, the obtained presto powder improved the durability of foundation and its ultraviolet-rays defense effect was high.

[0123][Embodiment 9] The complex powder obtained in Embodiment 2 is blended, The antiperspiration lotion of composition as shown in [Table 8] was prepared.

[0124]The method of preparation is as follows. That is, a suitable container is filled up, after dissolving the ingredient of (1) - (4) uniformly, adding (5) or (6) ingredient one by one to this and making the whole uniform.

[0125]

[Table 8]

組成	重量%
(1) 精製水( 基剤 )	77.9
(2) エタノール( 基剤・清涼剤 )	8.0
(3) 1, 3-ブチレングリコール( 保湿剤 )	3.0
(4) メチルパラベン( 防腐剤 )	0.1
(5) 実施例2の複合体粉末( 紫外線防御・延展性賦与 )	10.0
(6) ハマメリス抽出物( 植物抽出液 )	1.0
合計	100.0

It was the clean result, and it excelled in the deodorant effect, the smeariness by sweat was suppressed, and the obtained antiperspiration lotion had the high ultraviolet-rays defense effect.

[0126]

[Effect of the Invention][ the cosmetic which blended with the scaly silica aggregate particle of this invention the particulate complex which supports the metal oxide particle which has an ultraviolet shielding function, and it makes it come to decode as an ultraviolet shielding agent ] The adhesion to skin is good, it is the using feeling which the ultraviolet-rays defense effect was high, was excellent in the safety to the skin, and it carried out entirely, and it is [ the result state of makeup is good and ] the cosmetic excellent also in the durability of makeup.

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[Translation done.]